DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

February 10, 2016

Regulatory Division
File Number: NAE-2008-03324

Massachusetts Department of Transportation – Highway Division Construction
Attention: Jessica Kenny, Manager of Environmental Compliance Section
10 Park Plaza, Suite 4160
Boston, Massachusetts 02116

Dear Ms. Kenny:

We have reviewed your application to discharge dredged and/or fill material into approximately 28,362 square feet of waters of the United States, associated with the Waters River as part of the replacement of the Water Street (Route 35) Bridge (#D-03-013) in Danvers, Massachusetts. This bridge replacement project includes the removal of the existing bridge superstructure and associated abutments, as well as approximately 77 linear feet of the existing causeway; the plugging of the three existing overflow culverts; the construction of a new "wider" two-span bridge; the reworking of existing riprap scour protection; the riprap armoring of additional river bottom areas; and the installation of steel sheet cofferdams to dewater in-river construction areas. This project will result in the restoration of approximately 8,450 square feet of river bottom. Approximately 5,000 cubic yards of sediment will be excavated as part of this project and disposed of at an upland disposal site. The bottom slab of the existing box culvert will be retained. Section 404 impacts associated with this project are limited to the removal of the bridge abutments and portions of the existing causeway; the plugging of the overflow culverts; the construction of the new bridge abutments and central pier; and the installation and rehabilitation of riprap scour protection areas. The work is shown on the enclosed plans entitled "RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA", on 19 sheets, and dated "7/30/2012", except for sheets 6-9 and 18-19 which are dated "1/11/2013".

Based on the information you have provided, we have determined that the proposed activity, which includes a discharge of dredged or fill material into waters or wetlands, will have only minimal individual or cumulative environmental impacts on waters of the United States, including wetlands. Therefore, this work is authorized under the enclosed February 2015 General Permits for Massachusetts (GPs for MA), specifically GPs 10 and 14, under the pre-construction notification process. This work must be performed in accordance with the terms and conditions of the GPs, and also in compliance with the following special conditions:

1. The construction of this project shall be suitably designed and phased to withstand and to prevent the restriction of high flows, and so as to not obstruct the movement of aquatic life indigenous to the Waters River.

2. Stone riprap placed for scour protection shall at a minimum conform to the specifications set forth in Standard Specifications for Highways and Bridges, Massachusetts Highway Department, 1988. Section M2.02.2. Heavier stone riprap may be used as needed. [NOTE: This requirement to use larger riprap is not based upon engineering concerns, but rather based upon the Environmental Protection Agency's concerns that the riprap be vandal-proof.] In addition, MassDOT shall fill in the large voids in the proposed riprap revetment with smaller rock consistent with the Modified Rockfill specifications set forth in Standard Specifications for Highways and Bridges, Massachusetts Highway Department, 1988. Section M2.02.4.

3. The post-construction elevation of the Waters River bed shall be the same as or lower than the pre-construction elevation. The river bed, therefore, may have to be excavated so that the elevation of the top of the stone placed for scour protection is not higher than the pre-construction elevation. Pre- and post-construction stream surveys shall be conducted in order to document that stream bed and bank elevations have not been raised. In addition, the post-construction stream bed elevation shall match upstream and downstream bed elevations.

4. This authorization allows sections of the steel sheet cofferdam associated with the replacement bridge abutments and central pier to be cut down and retained after the construction phase of this project is complete. These sections of retained steel sheet cofferdam will be armored/buried with riprap as part of the revetment design. In all other areas the steel sheet cofferdams shall be removed in their entirety after the construction phase of this project is complete.

5. All work shall be conducted in a manner that prevents any debris, lumber, or construction materials and/or equipment from falling into the waterway. Any material or equipment that does fall into the waterway shall be removed. Except for the work authorized by this permit, nothing shall be in the waterway post-construction that was not there pre-construction. No later than 30 days after the completion of construction, a written certification by a registered professional engineer shall be submitted to the Corps stating that this is the case. In addition, the permittee shall remove any pre-existing debris and solid waste from the waterway and embankment within the contract limits of the project.

6. No temporary fill (e.g. access roads, cofferdams) may be placed in waters or wetlands unless specifically authorized by this permit. If temporary fill is used, it shall be disposed of at an upland site and suitably contained to prevent its subsequent erosion into a water of the U.S., and the area shall be restored to its original contours (but not higher). During use, such temporary fill must be stabilized to prevent erosion or, in the case of flowing water (rivers or streams), clean washed stone should be used.

7. Dewatering must be directed to an upland area and properly filtered prior to runback to receiving waters. Any runback shall be controlled to avoid sedimentation, erosion, and scour impacts to aquatic resources.

8. Except where stated otherwise, reports, drawings, correspondence, and any other submittals required by this permit shall be marked with the words "Permit No. NAE-2008-03324" and shall be addressed to the Corps Project Manager at U.S. Army Corps of Engineers, Regulatory Division, 696 Virginia Road, Concord, MA 01742". Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit.

We have waived the time of year restriction of General Condition 18.

The National Marine Fisheries Service has not provided conservation recommendations regarding the effects of your project on Essential Fish Habitat (EFH) as designated under the Magnuson-Stevens Fishery Conservation and Management Act.

You are responsible for complying with all of the GP requirements. Please review the enclosed GPs for MA document carefully, in particular the general conditions beginning on Page 23, to familiarize yourself with its contents. You should ensure that whoever does the work fully understands the requirements and that a copy of the permit document and this authorization letter are at the project site throughout the time the work is underway.

Your project is located within, or may affect resources within the coastal zone. The Massachusetts Office of Coastal Zone Management (CZM) has already determined that no further Federal Consistency Review is required.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to this office.

The GPs for MA expire on February 4, 2020. Activities authorized under the GPs that have commenced (i.e., are under construction) or are under contract to commence before the GPs expire will have until February 4, 2021 to complete the activity under the terms and general conditions. For work within Corps jurisdiction that is not completed by February 4, 2021, you will need to reference any reissued or new GPs to see if your project is still authorized or if a new application is required. If it is no longer authorized you must submit an application and receive written authorization before you can continue work within our jurisdiction. Please contact us immediately if you change the plans or construction methods for work within our jurisdiction. This office must approve any changes before you undertake them.

This authorization requires you to complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

This permit does not obviate the need to obtain other federal, state, or local authorizations required by law, as listed on Page 57 of the GP document. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) provided

above or all the terms and conditions of the GP may subject you to the enforcement provisions of our regulations.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Please contact Dan Vasconcelos, of my staff, at (978) 318-8653 if you have any questions.

Sincerely,

Jennifer L. McCarthy
Chief, Regulatory Division

Enclosures

cc:
Ed Reiner, U.S. EPA, Region 1, Boston, Massachusetts, reiner.ed@epa.gov
Christopher Ross, Massachusetts Department of Environmental Protection, Boston, Massachusetts, christopher.ross@state.ma.us
Michael Girvan, MassDEP-WRP, Boston, Massachusetts, michael.girvan@state.ma.us
Robert Boeri, Coastal Zone Management, Boston, Massachusetts, Robert.Boeri@state.ma.us
Patrice Bordonaro, Coastal Zone Management, Boston, Massachusetts, Patrice.Bordonaro@state.ma.us
Tay Evans, Massachusetts Division of Marine Fisheries, Gloucester, Massachusetts, tay.evans@state.ma.us
Conservation Commission, Danvers, Massachusetts, kfarr@mail.danvers-ma.org
Susan McArthur, MassDOT – Highway Division, Boston, Massachusetts, susan.mcarthur@state.ma.us
Paul Cinquegrano, MassDOT – Highway Division, Boston, Massachusetts, paul.cinquegrano@state.ma.us

US Army Corps
of Engineers ®
New England District

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: NAE-2008-03324

Project Manager Vasconcelos

Name of Permittee: MassDOT – Highway Division

Permit Issuance Date: February 10, 2016

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

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* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch A *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
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Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

_____ _____

Printed Name Date of Work Completion

( ) _____ ( ) _____

Telephone Number Telephone Number

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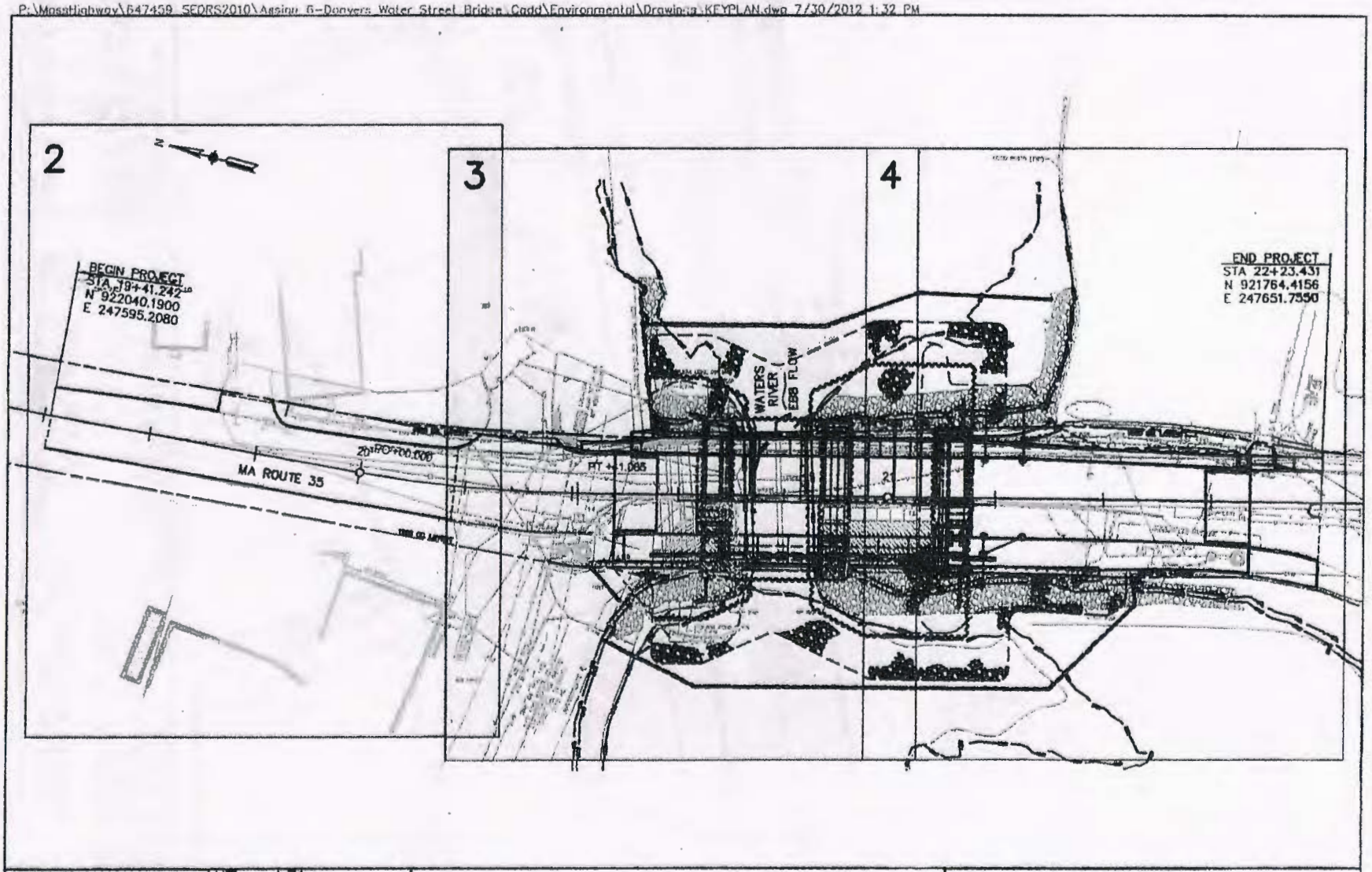
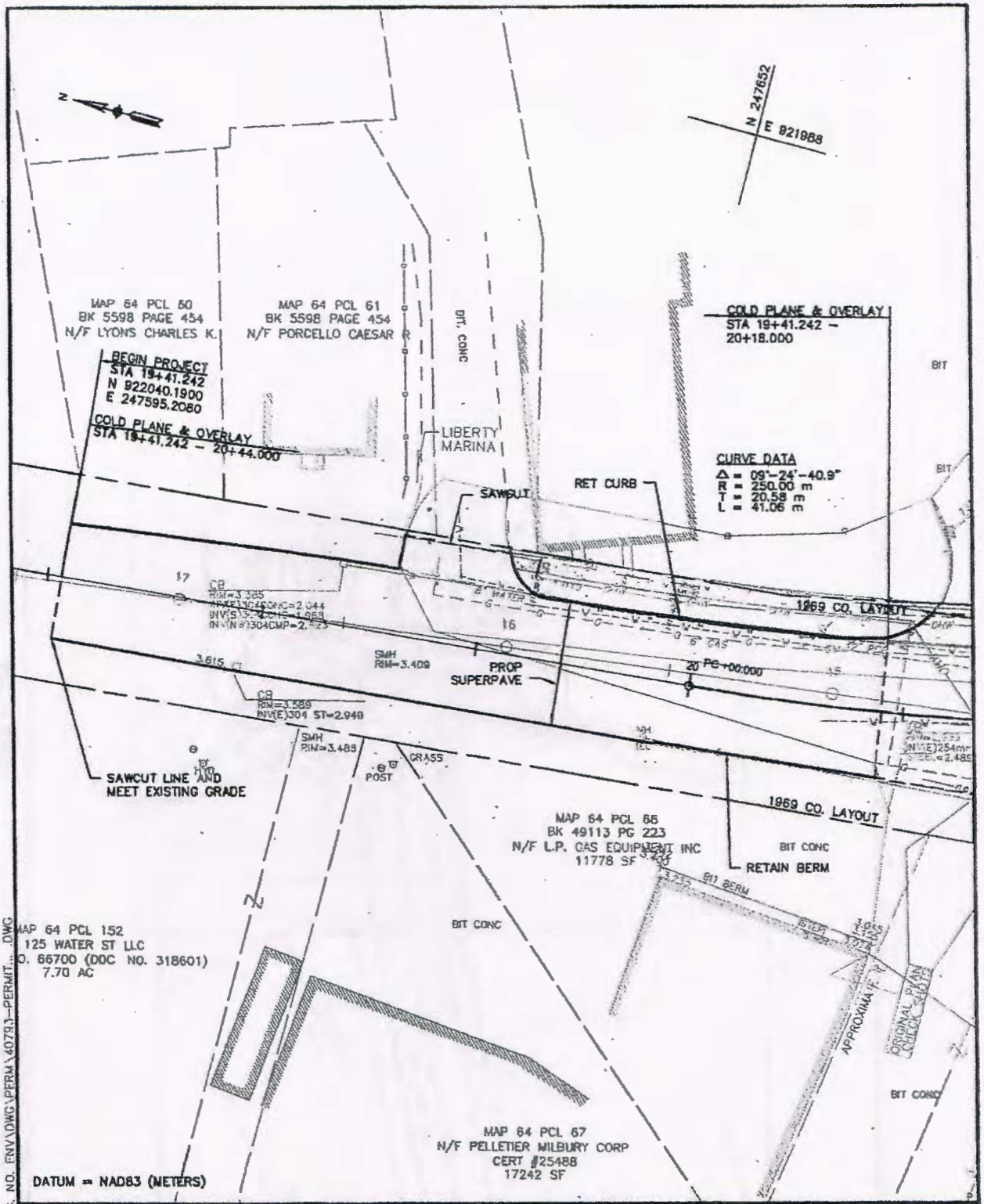


PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	KEY PLAN HORIZ. SCALE IN METERS 0 10 20 30 40 50	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 1 OF 19



MLW = -1.40 m
MHW = 1.33 m
HTL = 1.71 m
100 YEAR FLOOD AT ELE. 3.2 m

PARSONS 100 HIGH STREET
BOSTON, MA 02110

CONSTRUCTION PLAN

HORIZ. SCALE IN METERS
0 5 10 15 20 25

RECONSTRUCTION OF
BRIDGE D-03-013,
ROUTE 35 OVER THE WATERS RIVER IN
DANVERS, ESSEX COUNTY, MA

MASS DOT Project File # 606609
DATE: 7/30/2012 SHEET 2 OF 19

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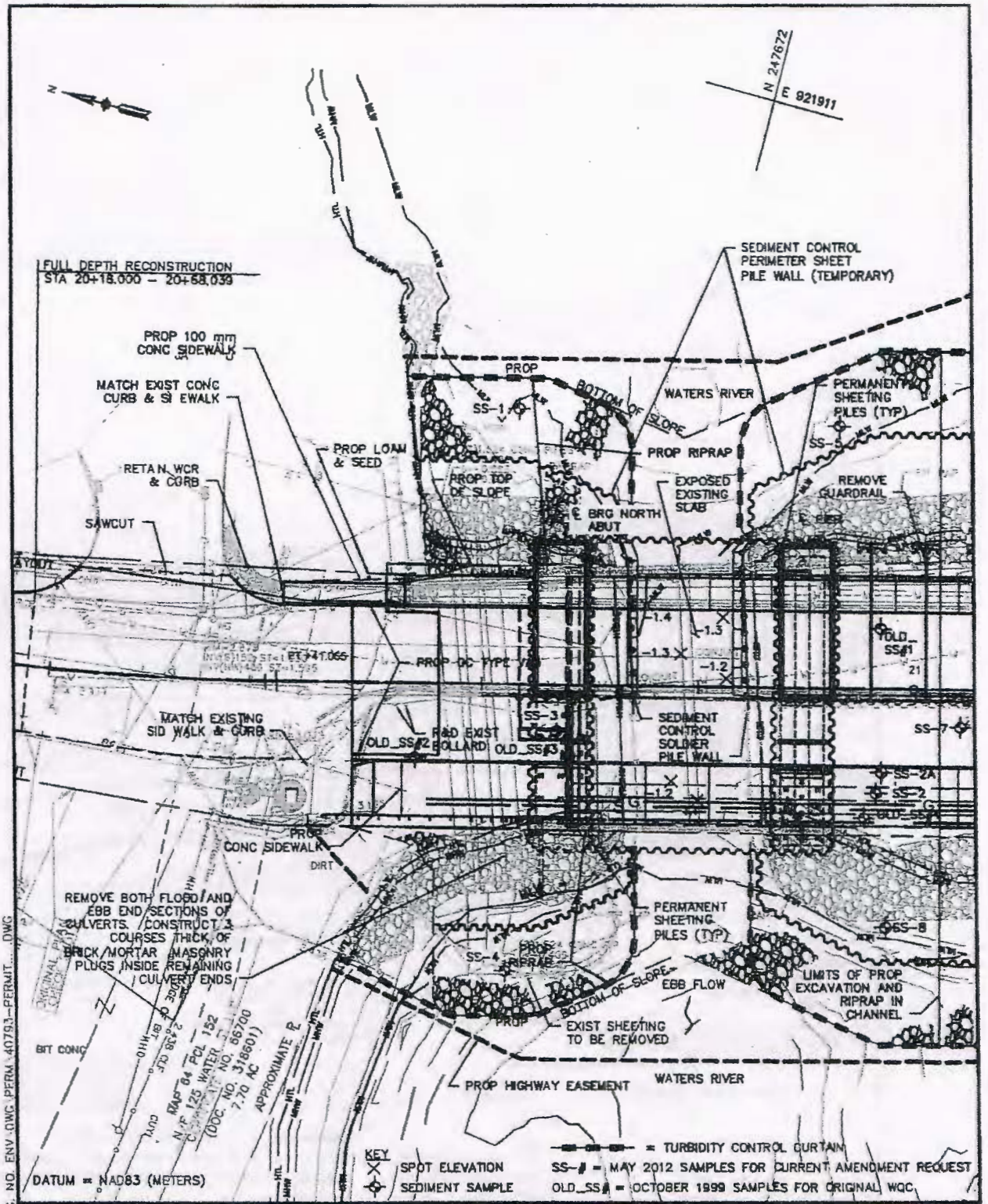

MLW = –1.40 m
MHW = 1.33 m
HTL = 1.71 m
100 YEAR FLOOD AT ELE. 3.2 m

PARSONS 100 HIGH STREET
BOSTON, MA 02110

CONSTRUCTION PLAN

HORIZ. SCALE IN METERS
0 5 10 15 20 25

RECONSTRUCTION OF
BRIDGE D-03-013,
ROUTE 35 OVER THE WATERS RIVER IN
DANVERS, ESSEX COUNTY, MA

MASS DOT Project File # 608609
DATE: 7/30/2012 SHEET 3 OF 19

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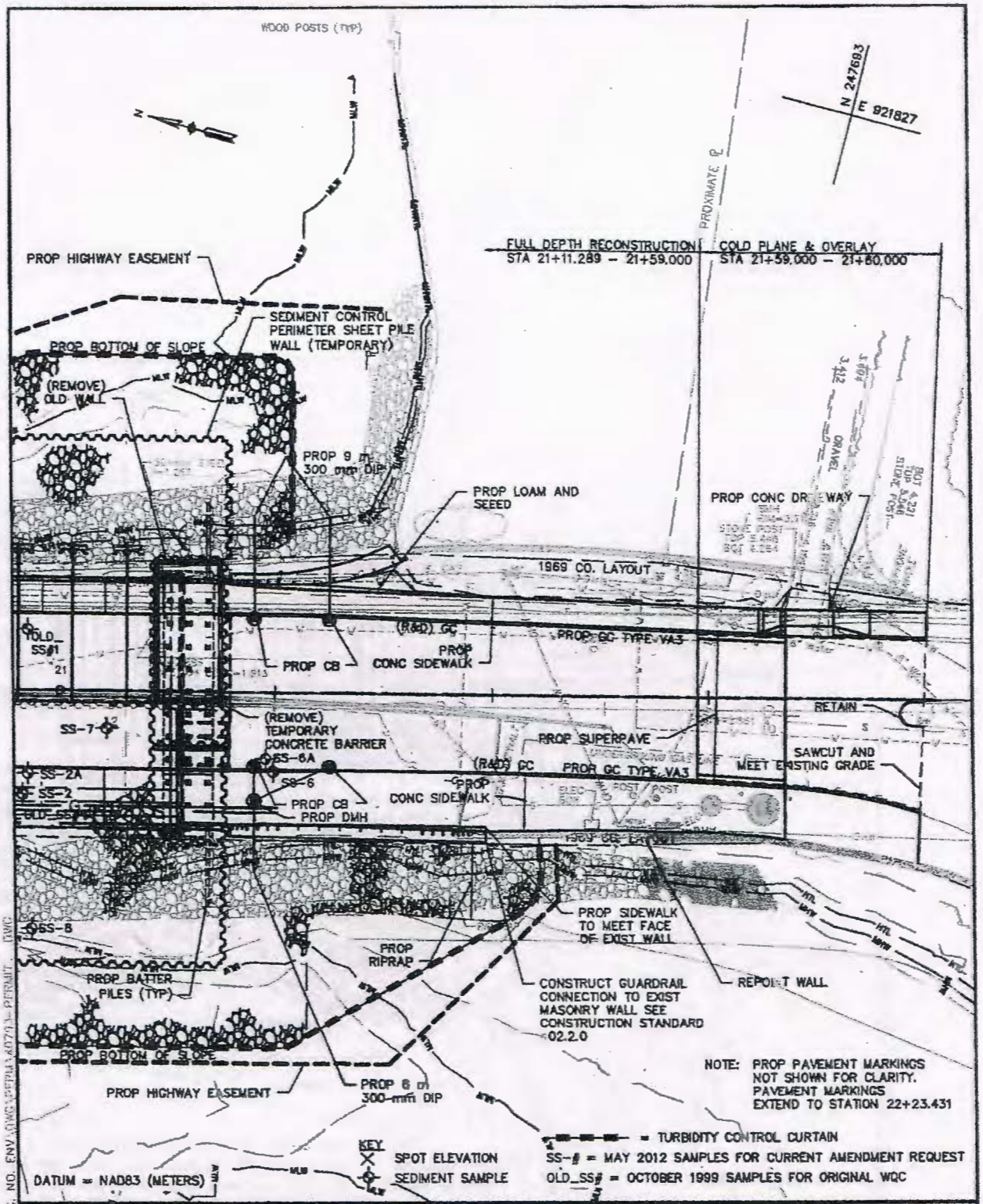

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MLW = –1.40 m
MHW = 1.33 m
HTL = 1.71 m
100 YEAR FLOOD AT ELE. 3.2 m

PARSONS 100 HIGH STREET
BOSTON, MA 02110

CONSTRUCTION PLAN

SHEET 3 OF 3

HORIZ. SCALE IN METERS
0 5 10 15 20 25

RECONSTRUCTION OF
BRIDGE D–03–013,
ROUTE 35 OVER THE WATERS RIVER IN
DANVERS, ESSEX COUNTY, MA

MASS DOT Project File # 606609
DATE: 7/30/2012 SHEET 4 OF 19

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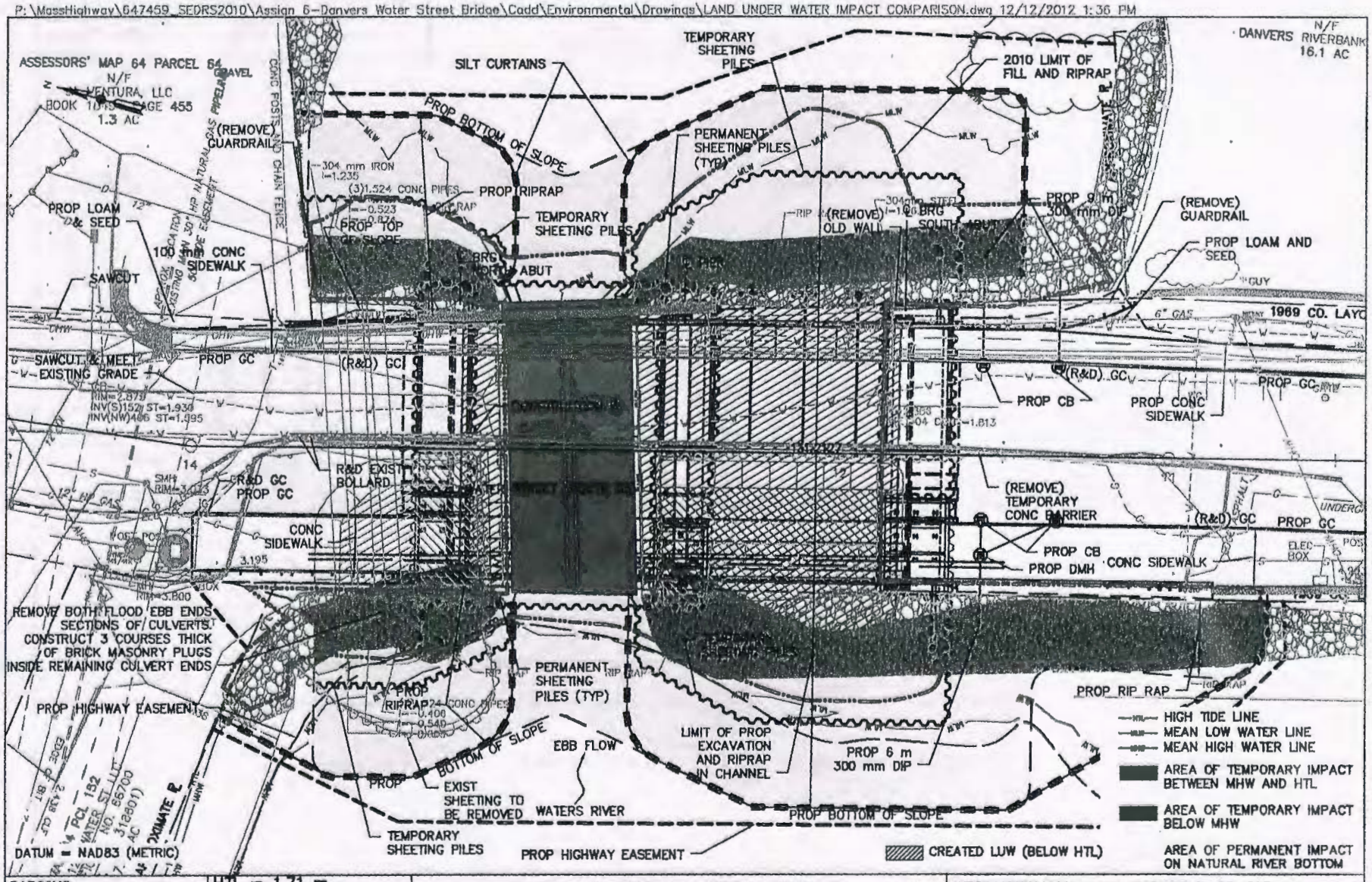

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	LAND UNDER WATER IMPACTS AND CREATION PLAN HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 5 OF 19

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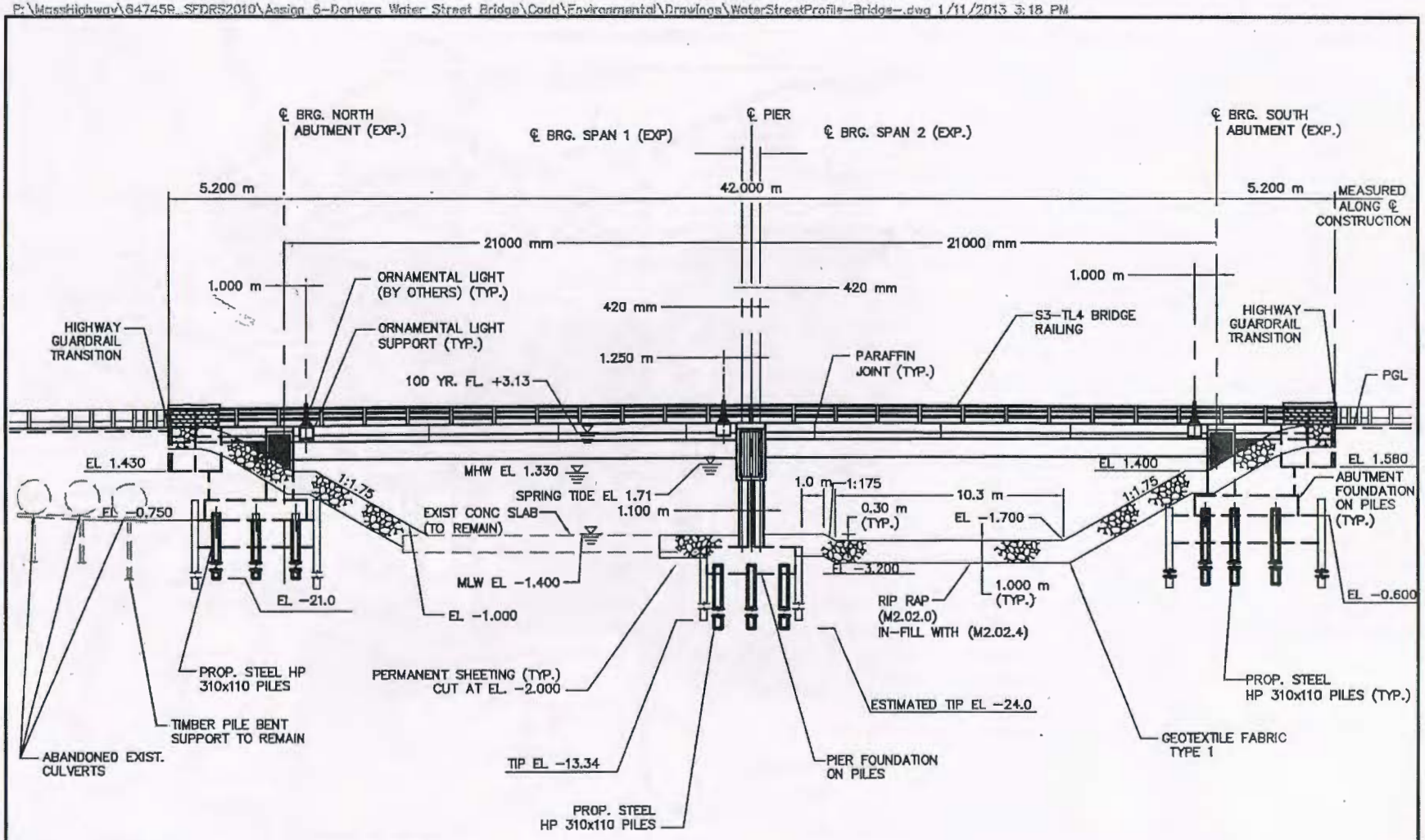


PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = -1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	WATER STREET PROFILE AT BRIDGE HORIZ. SCALE IN METERS 0 5 10 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 1/11/2013 SHEET 6 OF 19

CONSTRUCTION SEQUENCE – STAGE 1A:

1. PLACE ANY REQUIRED ENVIRONMENTAL CONTROLS.
2. FIELD LOCATE ALL UTILITIES AND EXISTING STRUCTURES WHICH MAY INTERFERE WITH THE PROPOSED CONSTRUCTION AND RELOCATE AS REQUIRED.
3. REMOVE EXISTING SHEETING SECTIONS AS SHOWN ON CONSTRUCTION SEQUENCING DRAWINGS.

CONSTRUCTION SEQUENCE – STAGE 1B:

4. INSTALL STAGE 1 SEDIMENT CONTROL WALL PILES ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
5. INSTALL PILES FOR STAGE 1 SEDIMENTATION CONTROL WALL ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
6. INSTALL STEEL PLATES FOR STAGE 1 SEDIMENT CONTROL WALL ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
7. INSTALL TURBIDITY CONTROL CURTAIN ON WEST SIDE. INSTALL STAGE 1 PERIMETER SHEET PILING AT THE LOCATIONS AND ELEVATIONS SHOWN. INSTALL REQUIRED RIPRAP THE SAME DAY AS SHEET PILE INSTALLATION. WHERE EXISTING RIPRAP IS ENCOUNTERED PRE-EXCAVATION WILL BE REQUIRED FOR SHEET PILE INSTALLATION. REMOVE TURBIDITY CONTROL CURTAIN.
8. CONNECT STAGE 1 SEDIMENT CONTROL WALL TO STAGE 1 PERIMETER SHEET PILING AND EXISTING ABUTMENT WALLS AS SHOWN.
9. INSTALL THE SHEETING FOR THE DEADMAN SUPPORT SYSTEM.
10. LOCALLY EXCAVATE AS REQUIRED TO REMOVE EXISTING WING WALL FOUNDATIONS AND TIMBER PILES AT THE WEST SIDE OF THE EXISTING NORTH ABUTMENT FOR INSTALLATION OF SHEET PILE COFFERDAM WALL.
11. LOCALLY EXCAVATE TO ELEVATION +1.7m IN AREA SHOWN. CONTRACTOR TO VERIFY EXISTING SHEET PILE WALL BEHIND EXISTING SOUTH ABUTMENT IS ADEQUATE TO SUPPORT CONTRACTOR'S CONSTRUCTION EQUIPMENT. CONTRACTOR HAS THE OPTION TO INSTALL SUPPLEMENTAL DEADMAN SUPPORT SYSTEM (DESIGN BY CONTRACTOR).
12. REMOVE SECTION OF EXISTING SOUTH ABUTMENT WALL AND UNDERLYING SLAB SECTION UP TO THE SOLDIER PILE WALL IN THE WET IN STAGE 1 AREA AS SHOWN. SURVEY LOCATION OF EXISTING TIMBER PILES.
13. LOCALLY EXCAVATE AS REQUIRED TO REMOVE EXISTING WINGWALL FOUNDATION AND FOUNDATION PILES ON WEST SIDE OF EXISTING NORTH AND SOUTH ABUTMENT.

CONSTRUCTION SEQUENCE – STAGE 1C:

14. INSTALL FIRST SEGMENT OF PIER COFFERDAM. IF NORTH WALL OF THE NEW PIER COFFERDAM CANNOT BE INSTALLED AS SHOWN DUE TO CONFLICT WITH TIMBER PILES, MOVE COFFERDAM WALL TO NORTH SIDE OF THE EXISTING FOUNDATION TIMBER PILES. POSITION SHEET PILES OF THE EAST WALL OF THE CENTER PIER COFFERDAM SO THAT PIER FOUNDATION PILES CAN BE DRIVEN IN BELLIES OF SHEETING. REMOVE ONLY EXISTING SHEET PILES THAT INTERFERE WITH INSTALLATION OF COFFERDAM.
15. INSTALL STAGE 1 SHEET PILING AT THE LOCATIONS AND ELEVATIONS SHOWN FOR THE NORTH ABUTMENT AND SOUTH ABUTMENT COFFERDAMS.
16. LOCALLY PRE-EXCAVATE TO ELEVATION +1.7m IN AREA SHOWN NORTH OF STAGE 1 NORTH ABUTMENT COFFERDAM.
17. EXCAVATE WITHIN THE NORTH ABUTMENT, PIER, AND SOUTH ABUTMENT COFFERDAMS TO NO MORE THAN 600 mm BELOW THE BRACING ELEVATIONS. REMOVE EXISTING SHEETING WITHIN PIER COFFERDAM.
18. INSTALL BRACING SYSTEM AT THE LOCATIONS AND ELEVATIONS SHOWN FOR THE NORTH ABUTMENT, PIER AND SOUTH ABUTMENT COFFERDAMS.
19. EXCAVATE TO THE BOTTOM OF TREMIE ELEVATION AT THE NORTH AND SOUTH ABUTMENT COFFERDAMS IN THE WET MAINTAINING EQUAL WATER LEVEL ON INSIDE AND OUTSIDE OF COFFERDAM. DO NOT EXCEED THE MAXIMUM EXCAVATION DEPTHS SHOWN ON THE PLANS.
20. EXCAVATE TO 400 mm BELOW THE BOTTOM OF PIER ELEVATION AT THE PIER COFFERDAM. CENTER PIER EXCAVATION MAY BE PERFORMED IN THE DRY. DO NOT EXCEED THE MAXIMUM EXCAVATION DEPTHS SHOWN. REMOVE EXISTING SHEET PILES WITHIN STAGE 1 CENTER PIER COFFERDAM.
21. INSTALL STAGE 1 FOUNDATION PILES AS REQUIRED WITHIN THE NEW NORTH ABUTMENT, PIER, AND SOUTH ABUTMENT COFFERDAMS.
22. PLACE TREMIE SEAL TIGHT TO SHEETING AT STAGE 1 NORTH AND SOUTH ABUTMENT COFFERDAMS. AFTER TREMIE SEAL ACHIEVES A COMPRESSIVE STRENGTH OF 21 MPa, REMOVE BRACING AT NORTH AND SOUTH ABUTMENT COFFERDAMS AS REQUIRED AND DEWATER COFFERDAMS.
23. PLACE 400 mm THICKNESS OF CRUSHED STONE AT BASE OF CENTER PIER COFFERDAM EXCAVATION. CONSTRUCT FOUNDATION WITHIN CENTER PIER COFFERDAM, PLACE STRUCTURAL BACKFILL AND 300mm THICK UNREINFORCED SLAB TIGHT TO TO SHEETING AS SHOWN. AFTER FOUNDATION AND 300mm THICK UNREINFORCED SLAB WITHIN CENTER PIER COFFERDAM REACHES A COMPRESSIVE STRENGTH OF 21 Mpa, REMOVE BRACING AT CENTER PIER COFFERDAM.
24. CONSTRUCT STAGE 1 ABUTMENTS AND CENTER PIER WITHIN ABUTMENT AND PIER COFFERDAMS.
25. EXCAVATE AREA BETWEEN NORTH ABUTMENT COFFERDAM SHEETING AND EXISTING SHEETING SECTION NORTH OF EXISTING NORTH ABUTMENT TO ELEVATION +0.2 METERS. REMOVE SECTION OF EXISTING SHEETING AS SHOWN.
26. REMOVE SECTION OF EXISTING NORTH ABUTMENT WALL AS SHOWN WITHIN STAGE 1 AREA TO THE TOP OF EXISTING SLAB IN THE WET.
27. LOCALLY EXCAVATE IN STAGE 1 AREA TO INSTALL NEW BRIDGE BEAMS AS REQUIRED TO RELOCATE EXISTING UTILITIES AS SHOWN.
28. CUT CENTER PIER AND ABUTMENT COFFERDAM SHEETING AS REQUIRED (NO LOWER THAN ELEVATION 1.7 METERS) TO INSTALL BRIDGE BEAMS FOR UTILITY RELOCATION.

CONSTRUCTION SEQUENCE – STAGE 1D:

29. INSTALL BRIDGE BEAMS No. 9, No. 10, No. 19 AND No. 20.
30. RELOCATE EXISTING GAS AND SEWER UTILITIES TO THEIR PROPOSED FINAL LOCATION ON BRIDGE.

CONSTRUCTION SEQUENCE – STAGE 1E:

31. EXTEND STAGE 1 SEDIMENT CONTROL WALL TO ALLOW FOR REMOVAL OF REMAINING EXISTING ABUTMENTS AND SLABS WITHIN STAGE 1.
32. REMOVE REMAINING PORTION OF EXISTING SOUTH ABUTMENT WALL AS SHOWN. REMOVE EXISTING SLAB AS REQUIRED TO INSTALL NEW SHEET PILING.
33. INSTALL CLOSURE WALL BETWEEN STAGE 1 AND STAGE 2 CONSTRUCTION LIMITS.
34. REMOVE EXISTING SHEETING ADJACENT TO CENTERLINE OF CONSTRUCTION BASELINE AS SHOWN ON CONSTRUCTION SEQUENCING DRAWINGS.
35. LOCALLY EXCAVATE IN THE WET WITHIN STAGE 1 AREA BETWEEN THE CENTER PIER AND SOUTH ABUTMENT COFFERDAMS TO NO MORE THAN 600 mm BELOW THE DEADMAN SUPPORT SYSTEM BRACING ELEVATIONS SHOWN.
36. INSTALL THE DEADMAN SUPPORT SYSTEM BRACING AT THE LOCATIONS AND ELEVATIONS SHOWN.

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION SEQUENCE NOTES 1 OF 3	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 1/11/2013 SHEET 7 OF 19

CONSTRUCTION SEQUENCE – STAGE 1F:

37. INSTALL STAGE 1 SHEET PILING AT THE LOCATIONS AND ELEVATIONS SHOWN FOR THE REMAINDER OF THE NORTH ABUTMENT AND SOUTH ABUTMENT COFFERDAMS.
38. INSTALL REMAINDER OF NEW STAGE 1 CENTER PIER COFFERDAM. IF NORTH WALL OF THE NEW CENTER PIER COFFERDAM CANNOT BE INSTALLED AS SHOWN DUE TO CONFLICT WITH TIMBER PILES, MOVE COFFERDAM WALL TO NORTH SIDE OF THE EXISTING FOUNDATION TIMBER PILES.
39. EXCAVATE WITHIN THE NORTH ABUTMENT, CENTER PIER, AND SOUTH ABUTMENT COFFERDAMS TO NO MORE THAN 600 mm BELOW THE BRACING ELEVATIONS. REMOVE EXISTING SHEETING WITHIN CENTER PIER COFFERDAM.
40. INSTALL BRACING SYSTEM AT THE LOCATIONS AND ELEVATIONS SHOWN FOR THE NORTH ABUTMENT, CENTER PIER AND SOUTH ABUTMENT COFFERDAMS.
41. EXCAVATE TO THE BOTTOM OF TREMIE ELEVATION AT THE STAGE 1 NORTH AND SOUTH ABUTMENT COFFERDAMS IN THE WET MAINTAINING EQUAL WATER LEVEL ON INSIDE AND OUTSIDE OF COFFERDAM. DO NOT EXCEED THE MAXIMUM EXCAVATION DEPTHS SHOWN ON THE PLANS.
42. EXCAVATE TO 400 mm BELOW THE BOTTOM OF PIER ELEVATION AT THE CENTER PIER STAGE 1 COFFERDAM. CENTER PIER EXCAVATION MAY BE PERFORMED IN THE DRY. DO NOT EXCEED THE MAXIMUM EXCAVATION DEPTHS SHOWN. REMOVE EXISTING SHEET PILES WITHIN STAGE 1 CENTER PIER COFFERDAM. REMOVE STAGE 1 CENTER PIER CLOSURE WALL SHEET PILES IF NECESSARY TO INSTALL CENTER PIER FOUNDATION PILES, OTHERWISE CUT STAGE 1 CENTER PIER CLOSURE WALL AT BOTTOM OF PIER ELEVATION.
43. LOCALLY REMOVE SECTIONS OF EXISTING WINGWALL FOUNDATIONS WITHIN NORTH ABUTMENT AND CENTER PIER COFFERDAMS AS REQUIRED TO ALLOW INSTALLATION OF REMAINING STAGE 1 FOUNDATION PILES.
44. INSTALL REMAINING STAGE 1 FOUNDATION PILES AS REQUIRED FOR THE NEW NORTH ABUTMENT, CENTER PIER, AND SOUTH ABUTMENT.
45. PLACE TREMIE SEAL TIGHT TO SHEETING AT STAGE 1 NORTH AND SOUTH ABUTMENT COFFERDAMS. AFTER TREMIE SEAL ACHIEVES A COMPRESSIVE STRENGTH OF 21 MPa, REMOVE BRACING AT NORTH AND SOUTH ABUTMENT COFFERDAMS AS REQUIRED AND DEWATER COFFERDAMS.
46. PLACE 400 mm THICKNESS OF CRUSHED STONE AT BASE OF CENTER PIER COFFERDAM EXCAVATION. CONSTRUCT CENTER PIER FOUNDATION, PLACE STRUCTURAL BACKFILL AND 300mm THICK UNREINFORCED SLAB TIGHT TO SHEETING AS SHOWN. AFTER FOUNDATION AND 300mm THICK UNREINFORCED SLAB WITHIN CENTER PIER COFFERDAM REACHES A COMPRESSIVE STRENGTH OF 21 Mpa, REMOVE BRACING AT CENTER PIER COFFERDAM.
47. CUT STAGE 1 NORTH AND SOUTH ABUTMENT CLOSURE WALLS AT TOP OF TREMIE ELEVATION. CONSTRUCT REMAINDER OF STAGE 1 ABUTMENTS FOUNDATIONS, AND ABUTMENTS AND CENTER PIER.
48. REMOVE REMAINING SECTIONS OF EXISTING NORTH ABUTMENT WALLS WITHIN STAGE 1 AREA TO THE TOP OF EXISTING SLAB IN THE WET.

CONSTRUCTION SEQUENCE – STAGE 1G:

49. EXCAVATE THE REMAINDER OF THE STAGE 1 AREA BETWEEN THE CENTER PIER AND SOUTH ABUTMENT COFFERDAMS IN THE WET AS REQUIRED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, AND PROJECT REQUIREMENTS.
50. REMOVE STEEL PLATES FOR STAGE 1 SEDIMENT CONTROL WALL ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
51. CUT PILES FOR STAGE 1 SEDIMENT CONTROL WALL TO TOP OF EXISTING SLAB ELEVATION ALONG SOUTH SIDE OF NORTH ABUTMENT.
52. PLACE STRUCTURAL FILL BEHIND NORTH AND SOUTH ABUTMENT WALLS WITHIN ANNULUS BETWEEN WALL AND SHEET PILE TO ELEVATION +1.7 METERS.
53. CUT NORTH SIDE OF NORTH ABUTMENT COFFERDAM SHEET PILES AND SOUTH SIDE OF SOUTH ABUTMENT COFFERDAM SHEET PILES TO ELEVATION +1.7 METERS.
54. PLACE REMAINING RIP RAP IN THE STAGE 1 AREA AS REQUIRED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, AND PROJECT REQUIREMENTS.
55. CONSTRUCT THE REMAINDER OF THE STAGE 1 BRIDGE SUPERSTRUCTURE AS REQUIRED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, AND PROJECT REQUIREMENTS.

CONSTRUCTION SEQUENCE – STAGE 2A:

56. PLACE ANY REQUIRED ENVIRONMENTAL CONTROLS.
57. FIELD LOCATE ALL UTILITIES AND EXISTING STRUCTURES WHICH MAY INTERFERE WITH THE PROPOSED CONSTRUCTION AND RELOCATE AS REQUIRED.
58. REMOVE REMAINDER OF EXISTING BRIDGE DECK SLAB.
59. DRILL HOLES THROUGH EXISTING SLAB FOR INSTALLATION OF STAGE 2 SEDIMENT CONTROL WALL PILES ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
60. INSTALL PILES FOR STAGE 2 SEDIMENTATION CONTROL WALL ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
61. INSTALL STEEL PLATES FOR STAGE 2 SEDIMENT CONTROL WALL ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
62. INSTALL TURBIDITY CONTROL CURTAIN ON EAST SIDE. INSTALL STAGE 2 PERIMETER SHEET PILING AT THE LOCATIONS AND ELEVATIONS SHOWN. INSTALL REQUIRED RIPRAP THE SAME DAY AS SHEET PILE INSTALLATION. WHERE EXISTING RIPRAP IS ENCOUNTERED PRE-EXCAVATION WILL BE REQUIRED FOR SHEET PILE INSTALLATION. REMOVE TURBIDITY CONTROL CURTAIN WHEN INSTALLATION OF RIPRAP HAS BEEN COMPLETED.
63. CONNECT STAGE 2 SEDIMENT CONTROL WALL TO STAGE 2 PERIMETER SHEETING AND NORTH ABUTMENT AND CENTER PIER COFFERDAMS AS SHOWN.
64. LOCALLY EXCAVATE AS REQUIRED TO REMOVE EXISTING WING WALL FOUNDATIONS AND TIMBER PILES AT THE EAST SIDE OF THE EXISTING NORTH AND SOUTH ABUTMENTS. INSTALL SHEETING AS REQUIRED TO MAINTAIN STABILITY OF DEADMAN ANCHOR (TO BE DESIGNED BY CONTRACTOR).

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = -1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION SEQUENCE NOTES 2 OF 3	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 1/11/2013 SHEET 8 OF 19

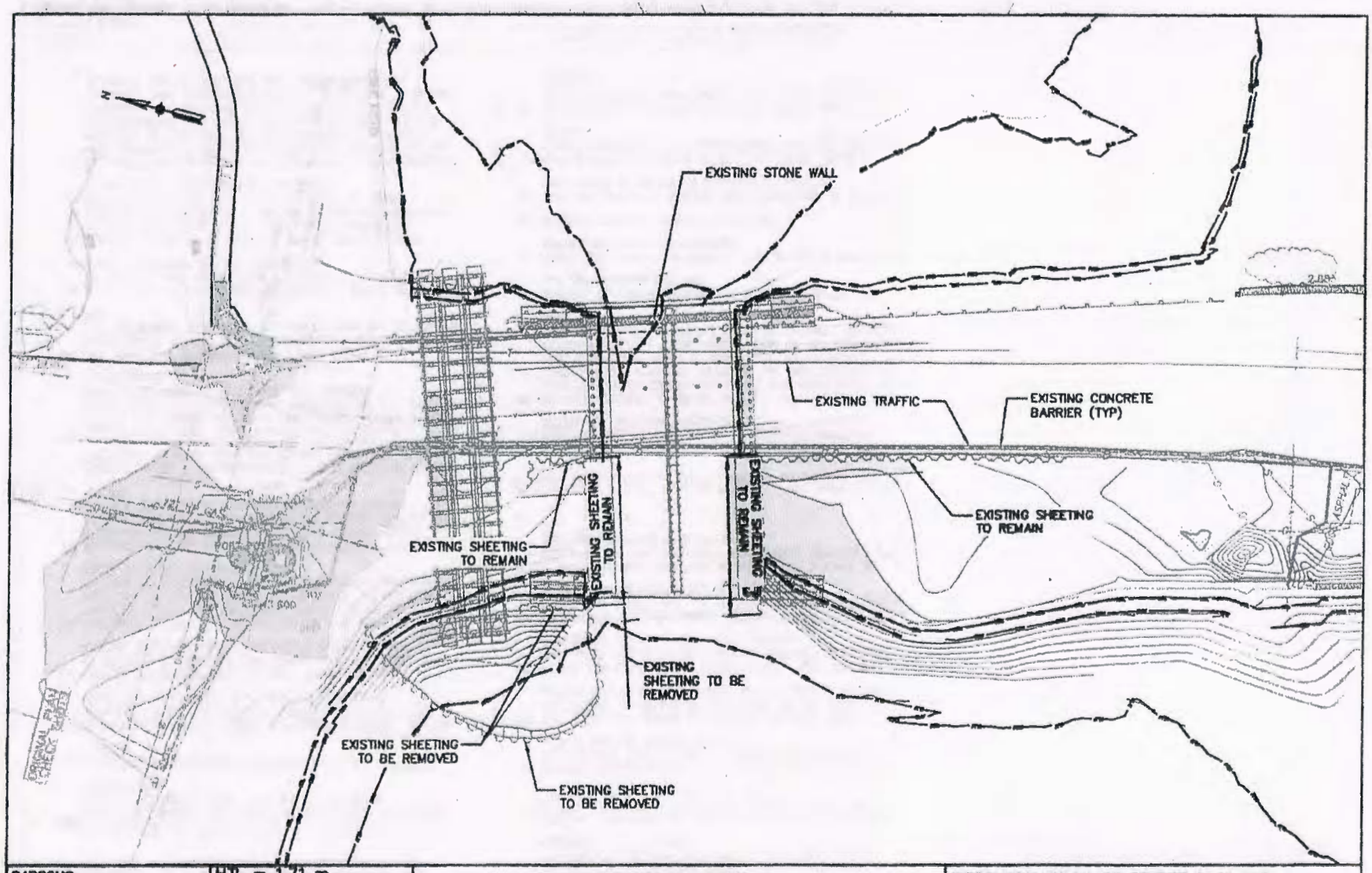
CONSTRUCTION SEQUENCE – STAGE 2B:

65. INSTALL STAGE 2 SHEET PILING AT THE LOCATIONS AND ELEVATIONS SHOWN ON THESE DRAWINGS FOR THE NORTH ABUTMENT, CENTER PIER, AND SOUTH ABUTMENT COFFERDAMS.
66. LOCALLY PRE-EXCAVATE TO ELEVATION +1.7m IN AREAS SHOWN.
67. EXCAVATE WITHIN THE STAGE 2 NORTH ABUTMENT, CENTER PIER, AND SOUTH ABUTMENT COFFERDAMS TO NO MORE THAN 600 mm BELOW THE BRACING ELEVATIONS.
68. INSTALL BRACING SYSTEM AT THE LOCATIONS AND ELEVATIONS SHOWN FOR THE STAGE 2 NORTH ABUTMENT, CENTER PIER AND SOUTH ABUTMENT COFFERDAMS.
69. EXCAVATE TO THE BOTTOM OF TREMIE ELEVATION AT THE STAGE 2 NORTH AND SOUTH ABUTMENT COFFERDAMS IN THE WET MAINTAINING EQUAL WATER LEVEL ON INSIDE AND OUTSIDE OF COFERDAM. DO NOT EXCEED THE MAXIMUM EXCAVATION DEPTHS SHOWN.
70. EXCAVATE TO 400 mm BELOW THE BOTTOM OF PIER ELEVATION AT THE CENTER PIER STAGE 2 COFFERDAM. CENTER PIER EXCAVATION MAY BE PERFORMED IN THE DRY. DO NOT EXCEED THE MAXIMUM EXCAVATION DEPTHS SHOWN.
71. INSTALL STAGE 2 FOUNDATION PILES FOR THE NEW NORTH ABUTMENT, CENTER PIER, AND SOUTH ABUTMENT.
72. PLACE TREMIE SEAL TIGHT TO SHEETING AT STAGE 2 NORTH AND SOUTH ABUTMENT COFFERDAMS. AFTER TREMIE SEAL ACHIEVES A COMPRESSIVE STRENGTH OF 21 MPa, REMOVE BRACING AS REQUIRED AND DEWATER COFFERDAMS.
73. CUT SHEETING BETWEEN STAGE 1 AND STAGE 2 COFFERDAMS AT THE NORTH AND SOUTH ABUTMENTS TO TOP OF TREMIE SLAB, AND AT CENTER PIER TO BOTTOM OF PIER.
74. PLACE 400 mm THICKNESS OF CRUSHED STONE AT BASE OF CENTER PIER COFFERDAM EXCAVATION. CONSTRUCT STAGE 2 ABUTMENTS AND CENTER PIER.
75. LOCALLY EXCAVATE IN THE WET WITHIN STAGE 2 AREA BETWEEN THE CENTER PIER AND SOUTH ABUTMENT COFFERDAMS. DEADMAN SUPPORT SYSTEM TIE RODS MAY BE REMOVED ONCE THIS STAGE 2 AREA HAS BEEN EXCAVATED TO ELEVATION 0.0 METERS.
76. EXCAVATE THE REMAINDER OF THE STAGE 2 AREA BETWEEN THE CENTER PIER AND SOUTH ABUTMENT COFFERDAMS IN THE WET AS REQUIRED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, AND PROJECT REQUIREMENTS. REMOVE SHEETING FOR DEADMAN SUPPORT SYSTEM INCLUDING CLOSURE WALL SEPARATING STAGE 1 AND STAGE 2 AREAS BETWEEN THE CENTER PIER AND SOUTH ABUTMENT.
77. EXCAVATE AREA BETWEEN STAGE 2 NORTH ABUTMENT COFFERDAM SHEETING AND NORTH ABUTMENT WALL TO ELEVATION +0.2 METERS.
78. REMOVE REMAINING SECTIONS OF EXISTING NORTH AND SOUTH ABUTMENT WALLS WITHIN STAGE 2 AREA TO THE TOP OF EXISTING SLAB IN THE WET.
79. REMOVE STEEL PLATES FOR STAGE 2 SEDIMENT CONTROL WALL ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
80. CUT PILES FOR STAGE 2 SEDIMENT CONTROL WALL TO TOP OF EXISTING SLAB ELEVATION ALONG SOUTH SIDE OF NORTH ABUTMENT AND NORTH SIDE OF SOUTH ABUTMENT.
81. PLACE STRUCTURAL FILL BEHIND NORTH AND SOUTH ABUTMENT WALLS WITHIN ANNULUS BETWEEN WALL AND SHEET PILE TO ELEVATION +1.7 METERS.
82. CUT NORTH SIDE OF NORTH ABUTMENT COFFERDAM SHEET PILES AND SOUTH SIDE OF SOUTH ABUTMENT COFFERDAM SHEET PILES TO ELEVATION +1.7 METERS.
83. PLACE REMAINING RIP RAP IN THE STAGE 2 AREA AS REQUIRED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, AND PROJECT REQUIREMENTS.

CONSTRUCTION SEQUENCE – STAGE 3:

84. REMOVE STAGE 1 AND STAGE 2 PERIMETER SHEETING AFTER ALL RIP RAP IS INSTALLED.
85. INSTALL CHANNEL CLOSURE SHEETING AT THE LOCATIONS AND ELEVATIONS SHOWN ON THESE DRAWINGS ONCE FLOW THROUGH THE CHANNEL BETWEEN THE NEW CENTER PIER AND SOUTH ABUTMENT IS UNOBSTRUCTED IN STAGE 1 AND STAGE 2 AREAS. LOCAL EXCAVATION OF RIP RAP WILL BE REQUIRED PRIOR TO INSTALLATION OF CHANNEL CLOSURE SHEETING.
86. REMOVE REMAINING SECTION OF EXISTING CENTER PIER TO TOP OF SLAB IN THE WET.
87. CONSTRUCT THE REMAINDER OF THE STAGE 2 BRIDGE SUPERSTRUCTURE AS REQUIRED.
88. REMOVE CHANNEL CLOSURE SHEETING.
89. CUT SHEETING FOR CENTER PIER COFFERDAM IN STAGE 1 AND STAGE 2 AREAS AT ELEVATION -2.00 m.
90. CUT SHEETING AT EAST, WEST, AND SOUTH SIDES OF NORTH ABUTMENT COFFERDAM SHEET PILES TO ELEVATION 0.15 m.
91. CUT SHEETING AT EAST, WEST, AND NORTH SIDES OF SOUTH ABUTMENT COFFERDAM SHEET PILES TO ELEVATION 0.15 m.
92. PLACE REMAINING RIP RAP AS REQUIRED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, AND PROJECT REQUIREMENTS.

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = -1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION SEQUENCE NOTES 3 OF 3	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 1/11/2013 SHEET 9 OF 19



PARSONS
100 HIGH STREET
BOSTON, MA 02110

HTL = 1.71 m
MLW = -1.4 m
MHW = 1.33 m
100 YR FL EL = 3.2 m
50 YR FL EL = 3.1 m
10 YR FL EL = 2.8 m

CONSTRUCTION STAGING PLAN - 1A

HORIZ. SCALE IN METERS
0 5 10 15 20 25

RECONSTRUCTION OF BRIDGE D-03-013,
ROUTE 35 OVER THE WATERS RIVER IN DANVERS,
ESSEX COUNTY, MA

MASS DOT Project File # 606609
DATE: 7/30/2012 SHEET 10 OF 19

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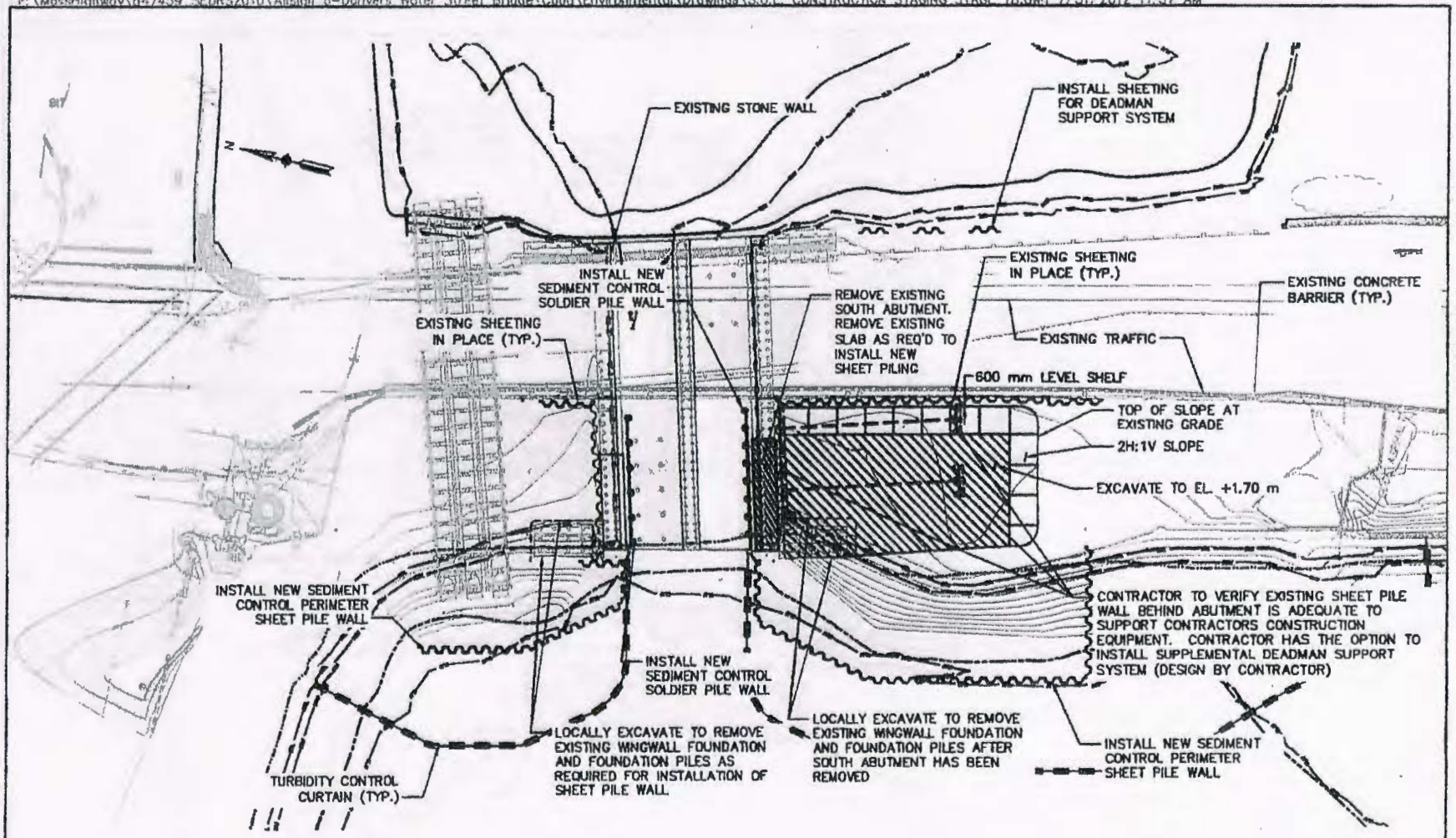
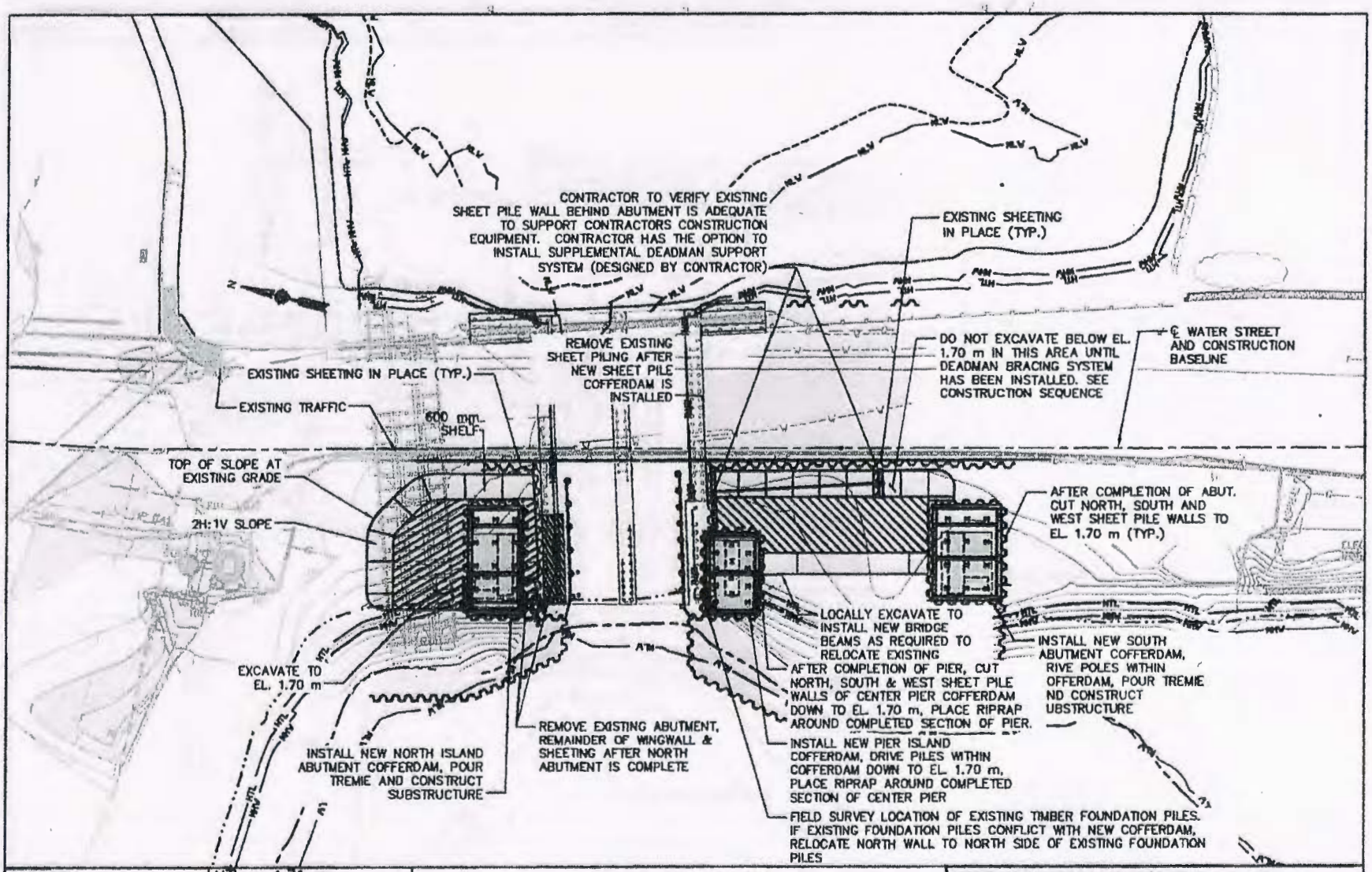


PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = -1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING PLAN - 1B HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 11 OF 19



PARSONS
100 HIGH STREET
BOSTON, MA 02110

HTL = 1.71 m
MLW = −1.4 m
MHW = 1.33 m
100 YR FL EL = 3.2 m
50 YR FL EL = 3.1 m
10 YR FL EL = 2.8 m

CONSTRUCTION STAGING PLAN - 1C

HORIZ. SCALE IN METERS
0 5 10 15 20 25

RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA

MASS DOT Project File # 606609
DATE: 7/30/2012 SHEET 12OF 19

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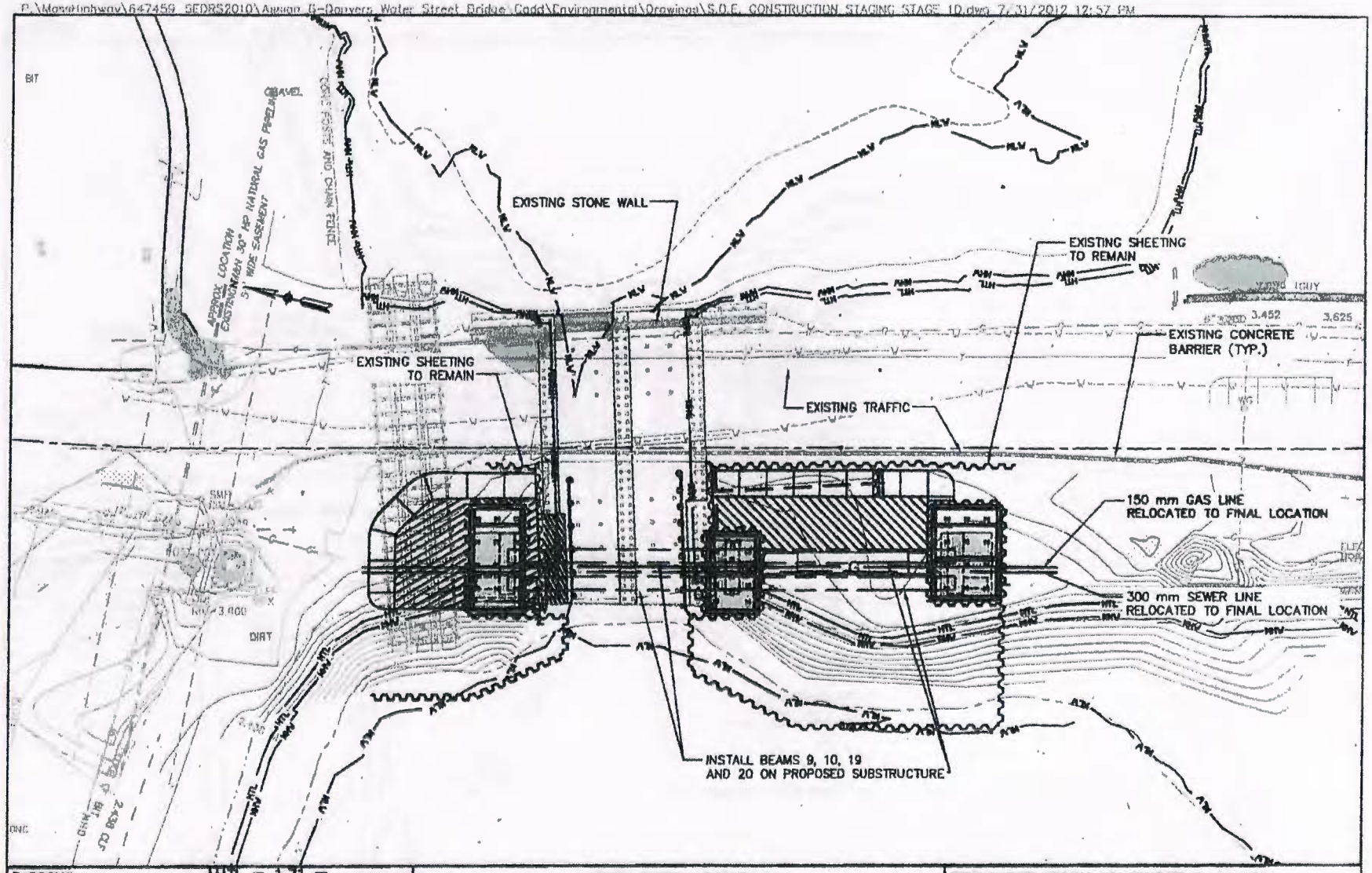
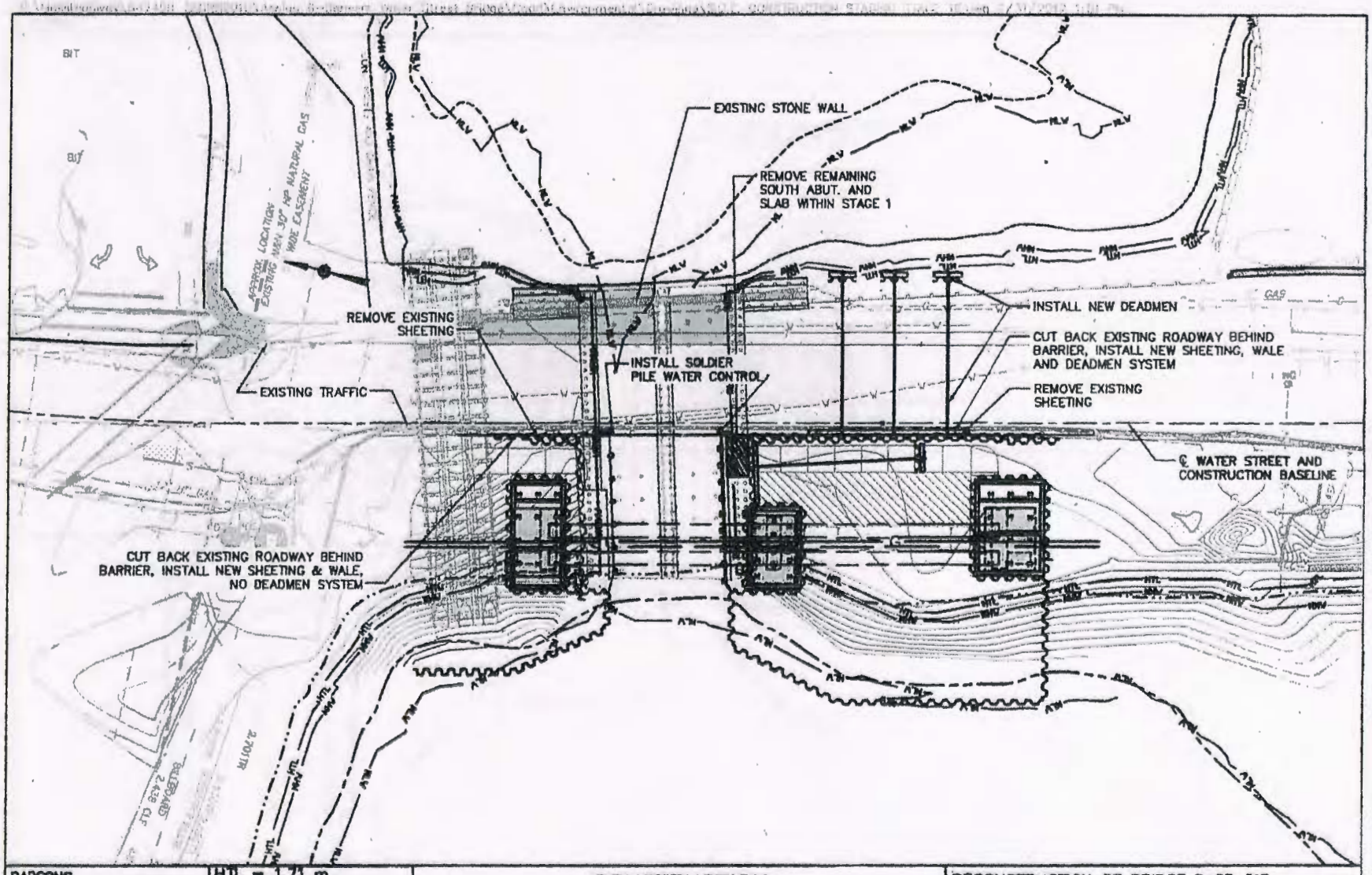
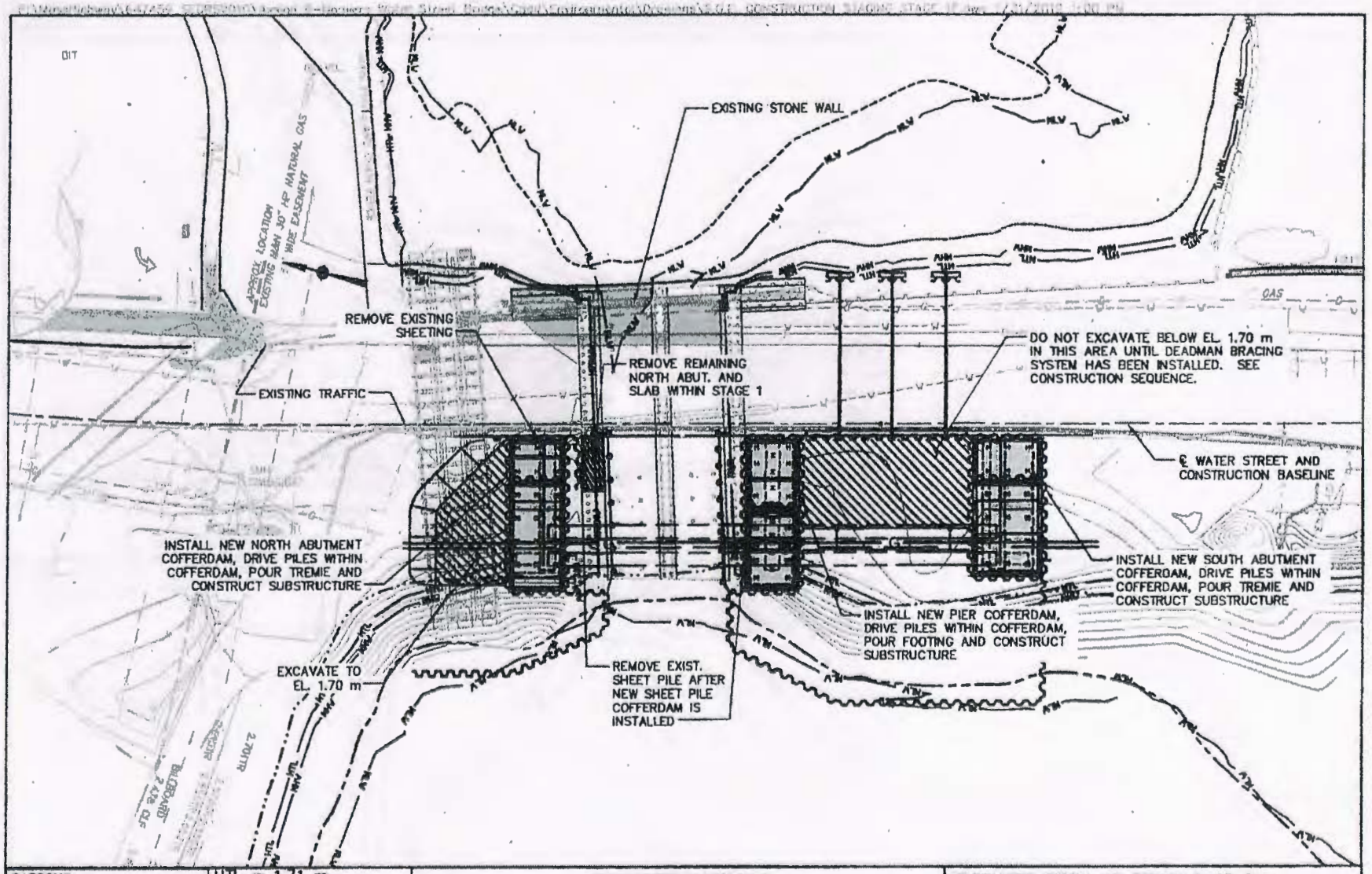


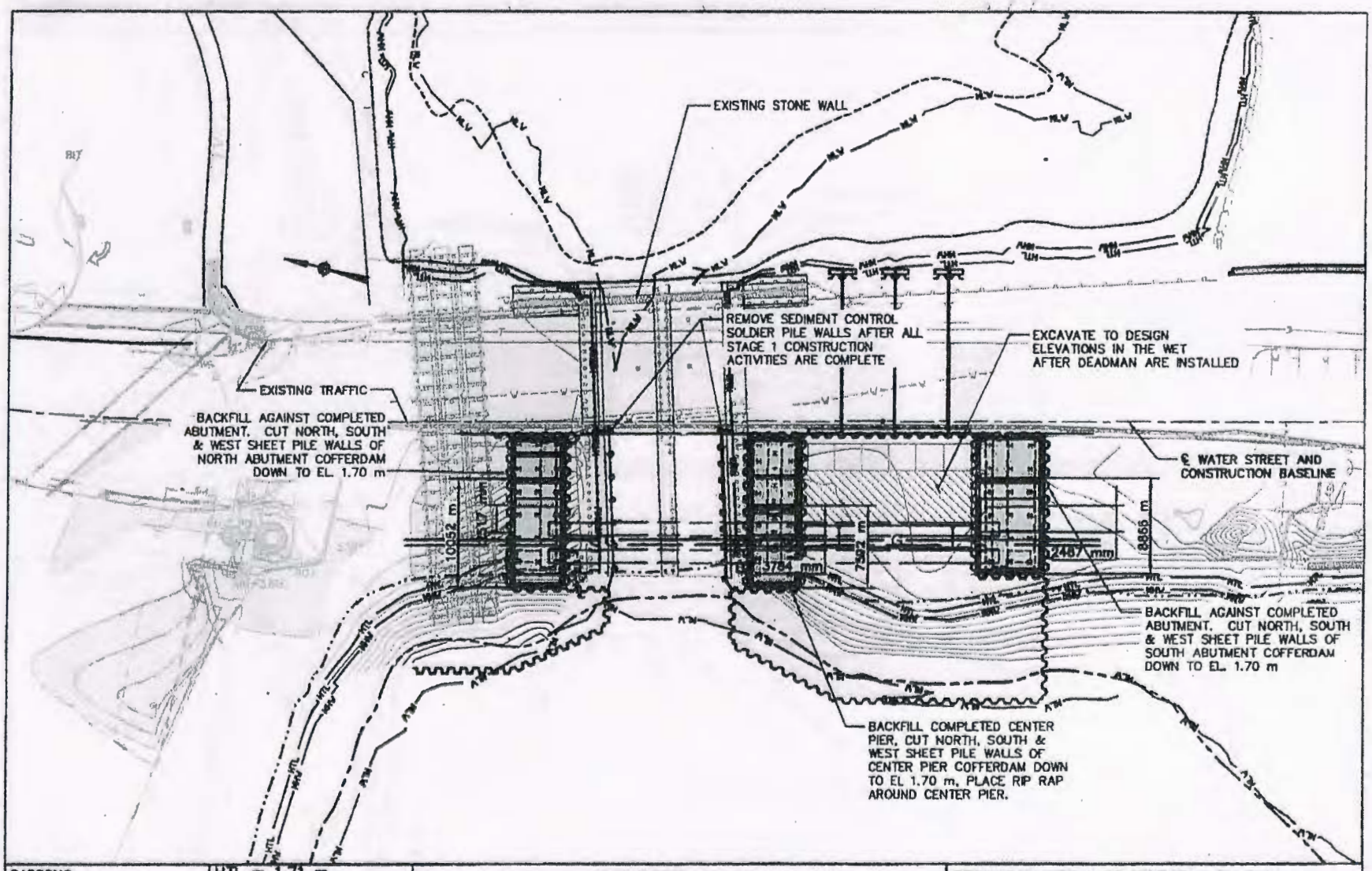
PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING PLAN - 1D HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 13 OF 19



PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = -1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING PLAN - 1E HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 14 OF 19



PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING PLAN - 1F HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 15 OF 19



PARSONS
100 HIGH STREET
BOSTON, MA 02110

HTL = 1.71 m
MLW = −1.4 m
MHW = 1.33 m
100 YR FL EL = 3.2 m
50 YR FL EL = 3.1 m
10 YR FL EL = 2.8 m

CONSTRUCTION STAGING - PLAN 1G

HORIZ. SCALE IN METERS
0 5 10 15 20 25

RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA

MASS DOT Project File # 606609
DATE: 7/30/2012 SHEET 16 OF 19

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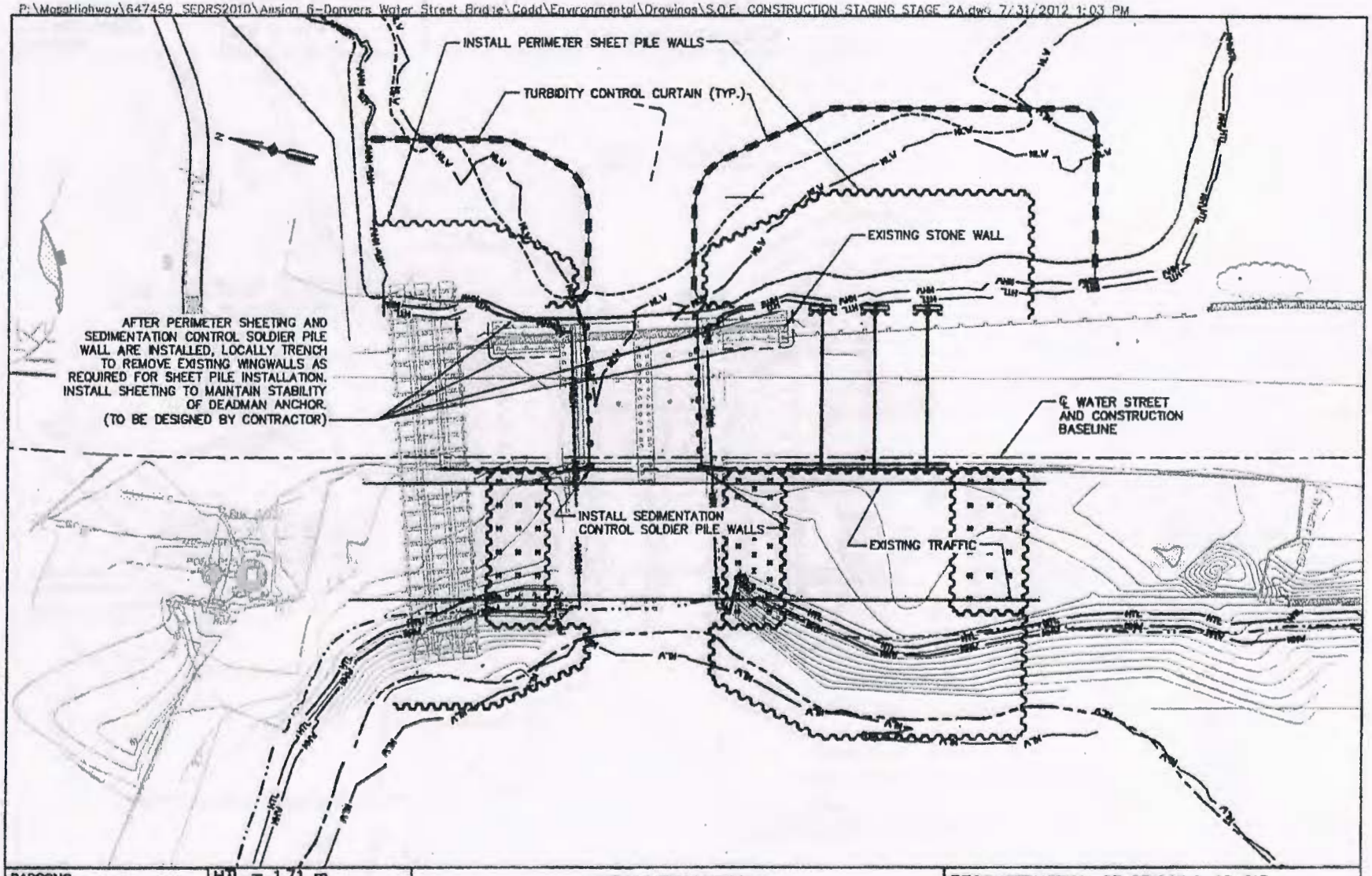

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING PLAN - 2A HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 7/30/2012 SHEET 17 OF 19

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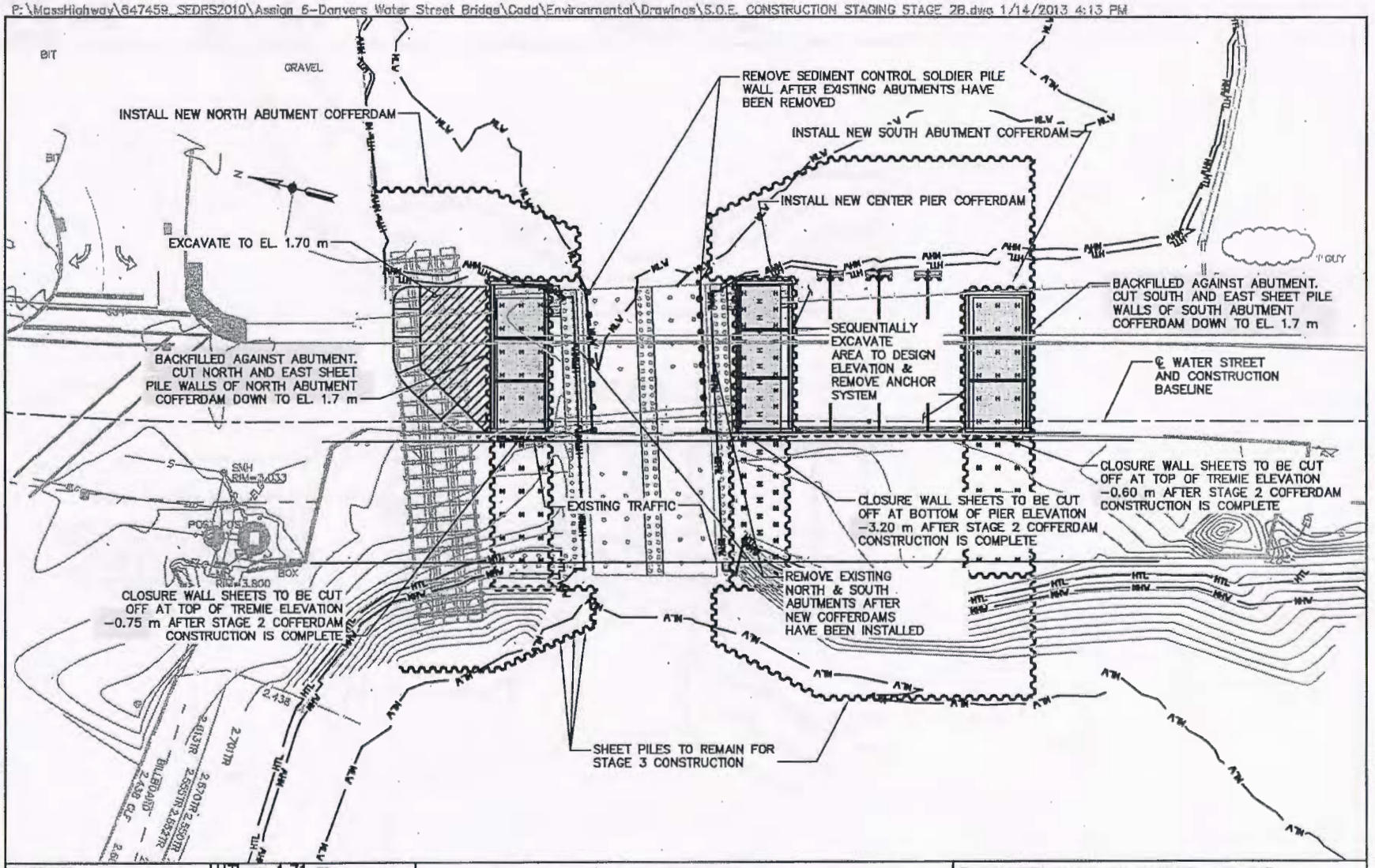

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = −1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING - PLAN 2B HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 1/11/2013 SHEET 18OF 19

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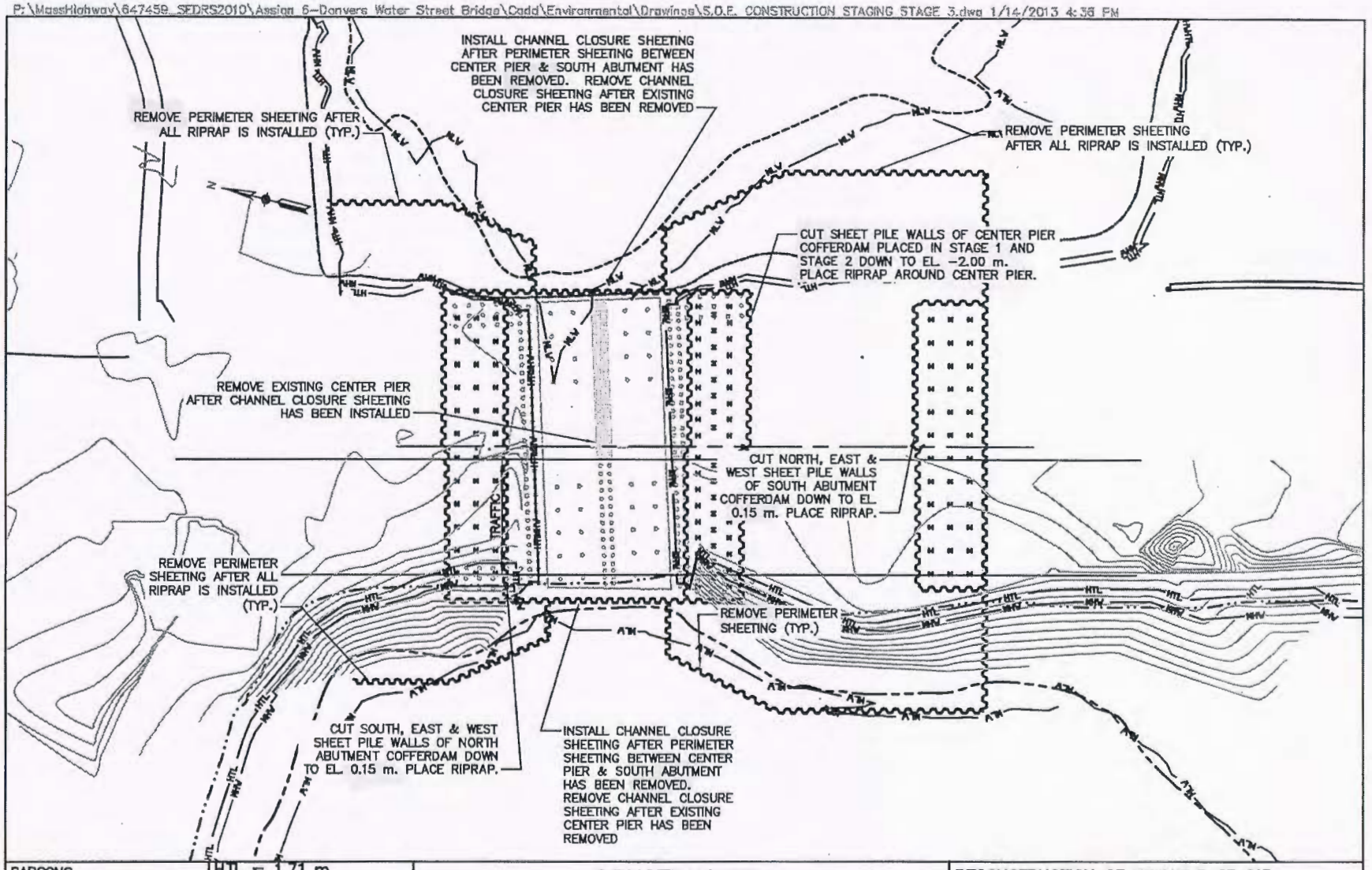

PARSONS 100 HIGH STREET BOSTON, MA 02110	HTL = 1.71 m MLW = -1.4 m MHW = 1.33 m 100 YR FL EL = 3.2 m 50 YR FL EL = 3.1 m 10 YR FL EL = 2.8 m	CONSTRUCTION STAGING PLAN - 3 HORIZ. SCALE IN METERS 0 5 10 15 20 25	RECONSTRUCTION OF BRIDGE D-03-013, ROUTE 35 OVER THE WATERS RIVER IN DANVERS, ESSEX COUNTY, MA MASS DOT Project File # 606609 DATE: 1/11/2013 SHEET 19OF 19